REMARKS:

I.   STATUS OF THE CLAIMS

Claims 1-39 are currently pending.

Claims 14-15, 18-19 and 28-31 were indicated as containing allowable subject matter, and claims 1-13, 16, 17, 20-27 and 32-39 were rejected. New claim 40 has been added. No new matter is added. Thus, claims 1-40 are pending and consideration. The rejections are traversed below.

II.   EXAMINER'S REQUEST FOR APPLICANTS' COOPERATIOIN IN CORRECTING MINOR ERRORS IN THE SPECIFICATION

Per Examiner's request, sections of the Specification are amended herein to correct minor errors therein.

III.   REQUEST FOR AN EXAMINER INTERVIEW

Ms. Temnit Afework of Staas & Halsey telephoned Examiner Lee to arrange an Examiner Interview, but the Examiner indicated that an Amendment should be filed before an Examiner Interview is conducted. Therefore, before the Examiner acts on this Amendment, it is respectfully requested that the Examiner contact Ms. Temnit Afework at 202-434-1500 to arrange an Examiner Interview.

IV.   REJECTION OF CLAIMS 1-2, 7-11, 16-17 and 32-35 UNDER 35 U.S.C. §102(b)

Claims 1, 2, 7-11, 16, 17 and 32-35 were rejected as being anticipated by U.S. Patent No. 5,107,346 (Bowers).

Applicants respectfully traverse this rejection of claims for at least the following reasons.

Independent claim 1 recites, "calculating the multilevel value of a given noteworthy pixel of the multilevel input image, as an estimated value of the noteworthy pixel, based on the multilevel values of pixels other than the noteworthy pixel". That is, the present invention

converts a multilevel input image into a binary image using a multilevel value of a noteworthy pixel (or an object pixel) calculated using "multilevel values of pixels other than noteworthy pixel".

Bowers detects gray-scale values at preselected pixel locations of an arbitrary pixel P, determines upper and lower limits of a range for each detected gray-scale value and selects values that randomly located between the upper and lower limits of the range to provide digital haftone images (see, col. 5, lines 28-32 and col. 6, lines 40-68). Bowers assigns an arbitrary number "z" for a magnitude of the detected gray-scale value of the pixel P to determine an error value thereof and successively executes an error diffusion processed for the scanned pixels (see, col. 8, lines 8-26).

Bowers does not teach or suggest, "calculating the multilevel value of a given noteworthy pixel of the multilevel input image, as an estimated value of the noteworthy pixel, based on the multilevel values of pixels other than the noteworthy pixel", as recited in independent claim 1.

For at least the above-mentioned reasons, Applicants respectfully submit that claims depending from claim 1 are also patentably distinguishable over Bowers. The dependent claims are also independently patentable. For example, as recited in claim 2, "the estimated value of the noteworthy pixel is calculated based on the multilevel values of pixels in a predetermined area that is a predetermined distance apart from the noteworthy pixel".

Therefore, it is respectfully submitted that the rejection of claims 1, 2, 7-11, 16, 17 and 32-35 is overcome.

V.   REJECTION OF CLAIMS 1-6, 8-13, 20-27 and 36-39 UNDER 35 U.S.C. §103(a) AS
        BEING UNPATENTABLE OVER COUWENHOVEN.

Claims 1-6, 8-13, 20-27 and 36-39 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,757,517 (Couwenhoven).

Applicants respectfully traverse this rejection of claims for at least the following reasons.

As recited in each of the independent claims 1, 38 and 39, the present invention includes "calculating the multilevel value of a given noteworthy pixel of the multilevel input image, as an estimated value of the noteworthy pixel, based on the multilevel values of pixels other than the noteworthy pixel" and "converting the estimated multilevel value of the noteworthy pixel into a binary value".

Couwenhoven computes a set of activity weights from an image activity signal and

provides a filtered input value for a digitized continuous-tone input pixel for computing a filtered output value for each possible output level (see, col. 5, lines 46 through col. 6, line 17). The Couwenhoven activity detector uses pixels within a particular vicinity to determine the activity signal, and uses a local range detector to compute the activity signal as a difference between maximum and minimum input pixel values of pixels within the particular vicinity (see, col. 5, lines 46-65).

Couwenhoven does not teach or suggest, "calculating the multilevel value of the noteworthy pixel based on the multilevel values of pixels other than the noteworthy pixel", as recited in each of the independent claims 1, 38 and 39.

For at least the above-mentioned reasons, Applicants respectfully submit that claims depending from claim 1 are also patentably distinguishable over Couwenhoven. The dependent claims are also independently patentable. For example, as recited in claim 12, the present invention includes "discriminating whether or not the noteworthy pixel is a pixel constituting part of a profile of the multilevel input image" and changing the error diffusion technique "if the result of said discriminating is positive".

Therefore, it is respectfully submitted that the rejection of claims 1-6, 8-13, 20-27 and 36-39 is overcome.

VI.   NEW CLAIM

New claim 40 is added to recite an apparatus executing operations including, "calculating an estimated value of a predetermined pixel of the multilevel input image based on multilevel values of pixels without using a multilevel value of the predetermined pixel" and "converting the estimated multilevel value of the predetermined pixel into a binary value to convert the multilevel input image into the binary image".

It is respectfully submitted that new claim 40 are patentably distinguishable over the cited references.

VII.   CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.
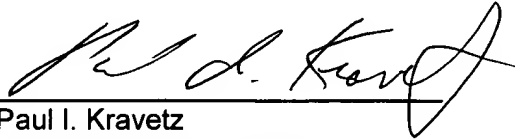
If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: _May 16, 2005_

By: _____

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